

Notice of Allowability

Application No.

10/724,147

Examiner

Krishnan S Menon

Applicant(s)

BOSLEY, KENNETH RANDALL

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Transmittal of new application, 12/1/03.
2. ☒ The allowed claim(s) is/are 12-20; RENUMBERED 1-9.
3. ☒ The drawings filed on 01 December 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>12/1/03</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

Claims 1-20 are pending.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Stephen Swift on 6/15/04.

The application has been amended as follows:

Claims 1-11 are deleted.

Claim 12 is amended, amended claim 12 is as follows:

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12. (Currently Amended) A method of desalinating seawater, comprising the steps of:

allowing seawater to pass through an inlet with a check valve into a brine enclosure; said inlet located far enough below the surface of the sea for the pressure of the body of sea water above the inlet to power reverse osmosis;

reverse osmosis of the seawater as water molecules pass from the brine enclosure through a membrane into a fresh water enclosure, while the membrane blocks the passage of sodium and chlorine ions;

maintaining a pressure differential across the membrane by pumping desalinated water out of the fresh water enclosure; and

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pumping water having an increased concentration of salt out of the brine enclosure to a brine return that is an elongated channel that passes along the sea floor, from an area where the sea floor has a higher elevation near an inlet of the brine return, to an area where the sea floor has a sufficiently lower elevation near an outlet of the brine return to enable brine flow by gravity;

whereby, [if] when the pumping is discontinued after the brine return is filled with the water having an increased concentration of salt, the force of gravity will cause the water having an increased concentration of salt to continue to flow through the brine return.

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Allowable Subject Matter

Claims 12-20 are allowed.

The following is an examiner's statement of reasons for allowance:

The closest prior art is Cole (US 3,456,802), which teaches a deep-sea submerged reverse osmosis system. Cole teaches an inlet which is at the surface of the sea, and a brine discharge at the bottom of the sea, but does not teach the element of claim 12, "inlet located far enough below the surface ... for the pressure of thewater above the inlet to power reverse osmosis". Another reference, Watkins (US 5,366,635) teaches a system that is submerged under a body of water, with inlet at a level below the surface. However, the brine outlet in the reference is at the same level as the seawater inlet. It would also be not obvious to one of ordinary skill in the art to

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combine these references or any others to arrive at the cited limitations of claim 12, because, even though there is teaching in the references of providing the pressure required for reverse osmosis by the height of water above the membrane (including water in the feed line from inlet to the membrane), there is no teaching or suggestion in any of the references for the need for pressure provided by the body of the water *above the inlet* to power the reverse osmosis.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Krishnan Menon
Patent Examiner



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